

**REMARKS/ARGUMENTS**

Claims 1-3 and 12 stand rejected, with claims 4-11 and 13-17 objected to in the outstanding Official Action. Claims 4, 13 and 14 have been cancelled without prejudice and claims 1-3, 5-12 and 15-17 amended. Accordingly, claims 1-3, 5-12 and 15-17 are the only claims remaining in this application.

The Examiner's acknowledgment of the acceptability of Applicant's previously submitted formal drawings is very much appreciated. Additionally, the Examiner's confirmation of receipt of Applicant's claim for foreign priority and receipt of the certified copies of the priority documents is very much appreciated.

**The Examiner has failed to initial and date as considered the properly submitted International Search Report as submitted with Applicant's Information Disclosure Statement**

On filing this application, Applicant included, pursuant to PTO practice and procedure, a PTO Form 1449 listing prior art cited in the International Search Report of PCT Application No. PCT/GB99/03000 (of which the present case is a National Phase entry). A copy of the International Search Report and copies of references cited in the International Search Report were forwarded by WIPO to the U.S. PTO PCT Receiving Office and acknowledged as having been received (See the "Notification of Acceptance of Application Under 35 USC §371" mailed by the US PTO on April 9, 2001). Thus, Applicant has complied with his obligation of providing the listing of references in the International Search Report on a PTO Form 1449 and the Patent Office has admitted receiving copies of the references.

Accordingly, the Examiner's failure to locate and consider those references and the result crossing through those references mentioned on the PTO Form 1449 is improper. Should the Examiner require additional copies of those references and should they not be found in the PTO Scientific Library, the PTO is authorized to obtain further copies of those references from WIPO. It must be emphasized that the burden is on the Patent and Trademark Office to obtain copies of these references, as WIPO clearly has sent one copy to the Patent Office who presumably lost or disposed of the references.

In any event, the burden is on the Examiner to obtain and consider those references cited in the International Search Report as noted on Applicant's PTO Form 1449, and additionally the Examiner has the burden of initialing and dating and returning to the Applicant a copy of the PTO Form 1449 making of record those references. It is respectfully requested that the Patent Office meet the burdens of considering prior art submitted in the International Search Report, inasmuch as Applicant has complied all PTO requirements for consideration of those references.

**The Examiner has objected to claims 1-3 and 12**

Claims 1-3 and 12 stand objected to because of a number of informalities. In claim 1, the Examiner suggests that the antecedent basis for "the detector radiation" is unclear. Applicant's claim 1 is directed to the use of a spatial light modulator having a particular pattern displayed thereon which has the effect of scanning radiation from an observed scene across the detector. Thus, it is radiation from the observed scene which is scanned across the detector. Applicant has amended the claim to clarify this interrelationship and the phrase "the detector radiation" no longer exists in the claim.

With respect to claims 2 and 3, the Examiner objects to the phrases "adapted to scan" and "adapted to focus." The Examiner's attention is directed to the Manual of Patent Examining Procedure (MPEP) Section 2173.05(g) in which the phrase "adapted to be positioned" is indicated as precisely defining structural attributes of interrelated parts of the claimed assembly. Thus, this so-called functional limitation is not indefinite, and having a controller which is adapted "to scan different angular portions" or is adapted to "focus different depth regions" clearly and accurately recites the structure of Applicant's claimed invention.

However, inasmuch as some U.S. patent examiners object to the use of the phrase "adapted to" even though this is clearly permitted by the MPEP, Applicant has amended the language to read "the controller controls the SLM so as to scan" and "the controller controls the SLM so as to focus." This language is believed to be clearly definite and also would appear to obviate any further objection in terms of indefiniteness.

With respect to claim 12, the Examiner suggests that the phrases "the scene-detector" and "the controller" are unclear. Applicant has deleted the phrase "scene-detector" thereby obviating any further objection thereto. Applicant has introduced that the SLM is "controlled by a controller" in the second line of claim 12, thereby providing clear antecedent basis for the subsequent reference to "the controller."

In view of the amendments to claims 1-3 and 12, there is believed to be no further basis for objection or rejection of these claims and any further objection by the Patent Office is respectfully traversed.

While the subject matter of claim 4 was incorporated into independent claim 1, the subject matter of claims 5-11 and 13-17 is objected to as being in improper multiple dependent

form. These claims have been amended to be singly dependent, thereby obviating any further objection thereto.

**The Examiner has rejected claims 1-3 and 12 under 35 USC §102**

Claims 1-3 and 12 stand rejected under 35 USC §102 as being anticipated by Robinson (U.S. Patent 5,616,912). The Robinson reference discloses a 3D imaging system which has a plurality of detectors and a liquid crystal SLM acting as a selective shutter. Controllably changing which portion of the SLM "shutter" is transmissive changes the portion of the scene imaged by the detector array. This can clearly be seen in Robinson in Figures 4 and 6 where portions of the scene coming from different angles are permitted through the microscope lens by making the shutter element 5 transmissive or non-transmissive as the case may be.

In Robinson's Figure 6 the angle to the object being imaged is somewhat larger due to the plurality of SLMs acting as shutters and the plurality of objective lenses focusing light from the different viewpoints onto different detectors. Thus, Robinson clearly discloses changing a pattern displayed on the SLM in order to transmit different viewpoint images of the object of the scene.

Applicant's invention is the use of diffraction patterns displayed on an SLM to control, not just transmissivity (or lack thereof) of the SLM, the look direction and/or the focal depth of the optical system. As disclosed in Applicant's specification, the use of varying diffraction patterns on an SLM removes the need to provide any mechanical scanning and/or zoom with respect to an observed scene.

Applicant has amended independent claim 1 by adding the subject matter of former dependent claim 4, i.e., that the pattern displayed on the SLM has at least two components, one comprised of a "substantially linear diffraction grating pattern" and the other comprised of a "substantially chirp function" pattern. The benefit of this pattern is that the use of diffraction patterns on the SLM to control the look direction and focal depth of the optical system removes the need to provide any mechanical scanning and/or zoom system. Thus, a compact scanning optical system can be provided without requiring any moving parts.

With respect to the subject matter added to claim 1, there is simply no disclosure in the Robinson reference of any sort of pattern displayed on the SLM, other than a pattern of transmissivity or non-transmissivity allowing light to pass through different optical systems to provide different viewpoint angles. There appears to be no disclosure in Robinson of Applicant's claimed pattern displayed on the spatial light modulator or the benefit of such a system which eliminates the need for mechanical scanning and/or mechanical zoom.

Should the Examiner be of the opinion that the Robinson reference does disclose Applicant's claimed SLM pattern, he is respectfully requested to point out the column and line number of such disclosure. Absent any such disclosure, it is submitted that claim 1 and all remaining claims dependent thereon are not anticipated or rendered obvious by Robinson and are in condition for allowance.

Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that remaining claims 1-3, 5-12 and 15-17 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that

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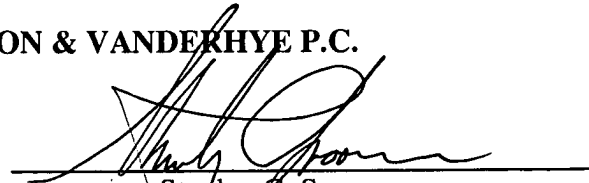
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a brief telephone or personal interview will facilitate allowance of one or more of the above claims, he is respectfully requested to contact Applicant's undersigned representative.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

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